DOCUMENT RESUME

ED 260 117 TM 850 442

AUTHOR Goodison, Marlene
TITLE Testing the Basic Competencies of Teacher Education Candidates with the Pre-Professional Skills Tests (PPST).
PUB DATE 31 Mar 85
NOTE 30p.; Paper presented at the Annual Meeting of the American Educational Research Association (69th, Chicago, IL, March 31-April 4, 1985).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Achievement Tests; Admission Criteria; College Entrance Examinations; Criterion Referenced Tests; Higher Education; Mastery Tests; *Minimum Competency Testing; Program Evaluation; Tables (Data); *Teacher Certification; Teacher Education; *Teacher Evaluation; Teacher Selection; *Test Construction; Testing Programs; *Test Use; Test Validity
IDENTIFIERS Educational Testing Service; *National Teacher Examinations; *Pre Professional Skills Test; Test Batteries

ABSTRACT

The Pre-Professional Skills Tests (PPST), was developed at Educational Testing Service at the request of the National Teachers Examination Policy Council. The battery of three tests is designed to provide objective, standardized measures of basic proficiency in reading, mathematics, and writing. The steps in the test development process of this battery are described. The PPST is used by institutes of higher education to assess candidates for teacher training programs. The battery is used by some states for initial certification of teachers. Several school districts use the PPST for teacher selection. Passing scores are established with a local standard setting study. Tables illustrate the distribution of test scores for all first time PPST examinees. The percentage of examinees who would fulfill requirements for initial certification, or program entry, by subgroups is displayed in table format. Appendices provide lists of PPST users and undergraduate major fields of study. (DWH)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED260117

# TESTING THE BASIC COMPETENCIES OF TEACHER EDUCATION CANDIDATES WITH THE PRE-PROFESSIONAL SKILLS TESTS (PPST)

Marlene Goodison
Program Administrator
Pre-Professional Skills Tests Program
Educational Testing Service

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Goodison Marlene

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Presented at the Annual Meeting
of the American Educational Research Association
and the National Council of Measurement in Education
Chicago, March 31, 1985.

TM 850 442

Testing the Basic Competencies of Teacher Education Candidates with the Pre-Professional Skills Tests (PPST)

Table of Contents


| | | Page |
|---|---|---|
| I. | The PPST: What they Measure | 1 |
| | A. Test Content | 1 |
| | B. Interpretation of PPST Test Scores | 2 |
| II. | The Test Development Process | 5 |
| III. | PPST Users | 9 |
| IV. | PPST Scores: February 1983 - December 1984 | 11 |
| Appendices | | |
| A. | PPST Users | 23 |
| B. | Undergraduate Major Fields | 25 |
| References | | 27 |

## I. THE PPST: WHAT THEY MEASURE

### A. Test Content

The Pre-Professional Skills Tests (PPST) are a secure battery of three tests designed to provide objective, standardized measures of basic proficiency in reading, mathematics, and writing. (Basic proficiency is defined as the minimum achievement level appropriate for graduates of secondary schools who may have had up to two years of post-secondary education.) The total testing time for all three tests is two and a half hours. The contents of the tests are outlined below.

READING: 40 multiple-choice questions
40 minutes

Objective: Examinee demonstrates abilities to understand, analyze, and evaluate written messages.

MATHEMATICS: 40 multiple-choice questions
50 minutes

Objective: Examinee demonstrates competencies in mathematics that include:

- o understanding how numbers behave
- o using numbers in an appropriate way
- o recognizing and using mathematical relationships
- o understanding the mathematical basis of measurement
- o understanding deductive reasoning
- o interpreting graphics, symbolic and verbal material

WRITING: 45 multiple-choice questions

30 minutes

Sentence Correction and Usage

1 essay topic

30 minutes

General content

holistically scored

Objective: Examinee demonstrates the ability to use standard written English correctly and effectively. This includes:

- o correct use of grammar and logical relationships
- o correct use of diction, idiom, and mechanics
- o effective use of written communication with a specific aim or purpose (essay)

B. Interpretation of PPST Scores

The PPST are used by individual institutions, state departments of education, and school districts for admission to teacher training programs, initial certification, and job selection. Each PPST user documents the appropriateness of the test and specifies the performance standards that are judged indicative of minimum competency. This is done through the process of test validation and standard setting.

Decisions about an individual's qualifications based on PPST scores are then made in direct relationship to the specified standards rather than in relationship to the individual's relative standing in any reference group. PPST clients use PPST scores only to establish eligibility for a pool of qualified candidates, not to rank or differentiate among qualified candidates in the pool.

Each PPST score is reported on a nondistributive scale of 150-190. Nondistributive scales are scales that are not based on the performance of groups of individuals. These scales are independent of the characteristics of either arbitrary groups or samples of examinees systematically drawn from clearly defined populations (Angoff 1984). A score of 150 is the minimum score possible (none right) and a score of 190 is the maximum score possible (all right). The standard error of measurement is approximately three scaled score points. Forms are equated by common-item equating. The equating of the Writing test is based only on the multiple choice section. The tests are not "normed." There is no data based on a nationally representative sample of an appropriate population. The score distributions reported in the PPST score interpretation leaflets are based on the scores of all examinees who have taken the PPST for a variety of reasons. The examinee group includes college students at all levels and college graduates.

Because of the direct interpretation of PPST scores in relation to an absolute standard (how much an examinee can do) it makes sense to think of them as criterion-referenced tests. The characterization of the PPST as criterion-referenced tests is supported by distinguished authors in the field. In 1971 Ebel characterized the difference between norm-referenced and criterion-referenced measurement as follows.

> The essential difference between norm-referenced and criterion-referenced measurements is in the quantitative scales used to express how much the individual can do. In norm-referenced measurement the scale is usually anchored in the middle, on some average level of performance for a particular group of individuals. The units of the scale are usually a function of the distribution of performances above and below the average level. In criterion-referenced measurement the scale is usually anchored at the extremities, a score at the

> top of the scale indicating complete or perfect mastery of some defined abilities, one at the bottom indicating complete absence of those abilities. The scale units consist of subdivisions of these total scores ranges. (Ebel, 1971, p. 282)

Two other authors who further support this interpretation are Popham and Husek. They stated:

> Criterion-referenced measures are those which are used to ascertain an individual's status with respect to some criterion; i.e., performance standard. It is because the individual is compared with some established criterion, rather than other individuals, that these measures are described as criterion-referenced. The meaningfulness of an individual score is not dependent on comparison with other testees. We want to know what the individual can do, not how he stands in comparison with others. (Popham & Husek, 1969, p.2)

These authors definitions of criterion-referenced tests describe the way PPST scores are used by states, school districts, and institutions of higher education in making decisions about examinees.

## II. THE TEST DEVELOPMENT PROCESS

In November 1980 the NTE Policy Council authorized a revision of the NTE Common Examinations. The revised test battery was named the NTE Core Battery and introduced in the fall of 1982. The Core Battery assesses reading, mathematics, and writing competencies, but in each case as a subset of a larger knowledge area. Separate scores on the three skills areas are not available. Responding to requests from the academic community, the Policy Council called for the development of a separate battery of reading, mathematics, and writing tests that would have larger samples of the domains of interest that would be adequate for reporting separate test scores. To this end, the PPST were developed and introduced in February of 1983.

The steps below outline the general sequence of events in the PPST test development process.* These steps incorporated a series of reviews and other quality control steps to verify the quality and accuracy of the PPST items and of the tests as a whole. Overall, more than twenty different reviews and controls were executed by the time items were arrayed in a final test form.

Steps in the Test Development Process

1. Developing the Test Specifications
   - Who will take the test and for what purposes?
   - What content and skills are to be covered?
   - How should examinees be able to use their knowledge?
   - What kinds of questions should there be and how many of each?

*This is typical of test development at ETS.



BEST COPY

- How complex should items be?
- How long should the test be?

2. Advisory Committees

Advisory committees, made up of experts from across the country, helped answer the above questions. When the PPST were developed, a panel of approximately thirty experts nominated by various professional associations created the conceptual framework and preliminary test specifications for the tests. Then the preliminary test specifications were reviewed for adequacy and comprehensiveness by approximately 3,000 persons (some within and some outside the field of education). The information obtained from these reviews contributed to the process of finalizing the test specifications.

3. Question Writing

The advisory committees (experts outside ETS) and ETS staff wrote the questions to meet the test specifications. After the questions were written, they received a minimum of two in-house reviews and a review by the advisory committee members before they were considered for inclusion in the pool of items from which the final editions were assembled.

4. Sensitivity Review

Each test was given a sensitivity review before it was printed in final form. A sensitivity review is done to ensure that the questions reflect the multicultural nature of our society and that the test is void of questions that could be regarded as potentially offensive, inappropriate for major subgroups of the

population, or serving to perpetuate and convey any negative attitude about these subgroups. These judgments are made by persons who have been trained by ETS to identify and eliminate materials that might be unfair or offensive to any group.

5. The Final Phase

At this point the tests were assembled to meet the specifications for difficulty and content. After the tests were assembled, they were reviewed by editors and by independent ETS specialists other than the test developer(s). Each reviewer answered all questions independently and prepared a list of correct answers that were then compared with the intended answers to verify agreement on the correct answers. At least three people had to agree to the correct answer to every question. (This is a standard ETS requirement.) The tests were then sent to the advisory committee for review before they were printed.

6. Continuing Evaluation

The evaluation process continues even after the tests have been administered. Test center supervisors immediately report to ETS about examinees' concerns, including questions that may be worded ambiguously. This information goes directly to the test developers where possible problems questions are investigated. If a problem is found, corrective action, such as not scoring the questions, is taken before the final scoring and score reporting. In addition, before final scoring takes place, preliminary statistical analysis of each question is carried out based on several thousand

answer sheets. The results are reviewed question-by-question to identify any problems.

At every stage of the PPST test development process, standardized ETS procedures were followed to assure the accuracy and fairness of the individual test questions and the tests as a whole.

## III. PPST USERS

The PPST are most often used by institutions of higher education (IHEs) for entry to teacher training programs. A few institutions use all or a part of the PPST as an entry requirement for all upper level programs. Some IHEs have established criteria for program entry at the junior level while others require scores from students but do not use them for admission decisions. IHEs report using the scores for student counseling, program evaluation, and identifying needed remediation programs. Three states--Texas, Tennessee, and Kansas--are requiring students to meet a specified PPST score for entry into teacher education programs and a number of other states are considering such use. Appendix A lists the current PPST users.

The second most frequent use of the PPST is for initial certification. Delaware, West Virginia, Nevada, and New Hampshire presently or will shortly require the PPST as part of the initial certification process. (See Appendix A.)

A third use of the tests is by school districts for teacher selection. Prince William County in Virginia and the Council for Academic Excellence in Ohio Schools (a consortium of Ohio school districts) use the PPST for this purpose. The Cincinnati public schools use the PPST Writing test as part of the assessment program for promotion to principal.

In all cases, use of the PPST is supported by local content validation studies. In addition, whenever a minimum standard (i.e, a passing score) is established, it is done with a local standard-setting study. The study participants determine what PPST scores demonstrate enough ability in the

skill areas measured to qualify candidates as minimally competent. Minimal competence is operationally defined by each user.

## IV. PPST SCORES: FEBRUARY 1983 - DECEMBER 1984

PPST scores are reported on a scale of 150 to 190. The distribution of scores for all first-time PPST examinees reported through December 1984 are presented in Tables 1-3. Using criteria established in two states as examples, Tables 4-6 show by subgroups the percent of examinees who would fulfill requirements for initial certification or program entry. Data are shown only for groups having at least 300 examinees.

It is important in looking at these tables to remember that although the criteria are local, the examinee data are not. The data do not therefore indicate the percent passing in the respective localities. Also, it is important to remember the data are not representative of all applicants for teacher training programs or initial certification nor subgroups of those populations. Therefore, generalizations to any specified groups other than the PPST first-time test-takers should be avoided.

Table 4 shows that nearly three-quarters of all PPST test-takers met the exemplar statewide program entry requirement in Reading on their first try. Fifty-nine percent met the certification requirement. Table 5 shows similar results for Mathematics (59 percent passed for certification and 75 percent passed for program entry). For writing, the initial certification requirement is lower than it is for Reading or Mathematics and thus for Writing approximately three-quarters of the test-takers pass both standards on the first try.

With respect to the pass rate for subgroups of the PPST population, Table 4 shows little difference in pass rate for Reading by gender, but in Mathematics and Writing the results are consistent wth those observed in

other standardized testing programs. That is, as a group male test-takers score higher than females in Mathematics and female test-takers score higher than males in Writing.

Substantial differences in pass rate by race or ethnic group occur in all three skill areas. Blacks, Mexican Americans, and other Hispanics generally show somewhat less than or approximately half the pass rate of Whites, in Reading and Mathematics. In Writing, the minority pass rate ranges from about half the White pass rate to about two-thirds the White pass rate.

Because differences in performance on standardized tests are associated with ethnicity - with White examinees as a group scoring higher than Black examinees - item fairness studies have been undertaken at ETS to identify any possible test content factors related to differential performance. However, the results of these studies have been inconclusive in demonstrating item bias (Dorans 1982).

Differences in pass rate by undergraduate major are most substantial in Reading. Humanities, natural sciences, and social sciences students do better on the tests than do majors in other areas. Humanities majors are the best performers on the Reading and Writing tests and natural sciences majors are the best performers on the Mathematics test.

Data on PPST repeat test takers accumulated from February 1983 through December 1984 are shown in Tables 7-9. Approximately 40 percent of the Reading test repeaters showed no score again. The most frequently observed score gain in Reading is four score points. About a third had a score gains of one to four points. Less than four percent increased their scores by 10 points or more. On the Mathematics test, about one third of

the repeaters showed no gain. The most frequent gain was three score points. Nearly 40 percent of the repeaters score gains were from one to four points. Fewer than 4 percent improved their scores by ten points or more. The Writing test data in Table 9 show that twenty-nine percent of the repeaters had no improvement on the retest. The most frequent score gain was two points; nearly half gained one to four points. Fewer than 2 percent improved their scores by ten points or more.

The data on repeaters suggest that examinees who have missed the qualifying score by only a few points have a reasonable chance of improving their scores enough to pass on a second attempt. However, large score gains are rare.

TABLE 1

Cumulative Frequency Distribution for All PPST
First-time Reading Test Examinees
(February 1983-December 1984)

| Scaled Score | Frequency | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| 150-158 | 57 | 57 | 0.213 | 0.213 |
| 159 | 42 | 99 | 0.157 | 0.370 |
| 160 | 37 | 136 | 0.138 | 0.509 |
| 161 | 70 | 206 | 0.262 | 0.771 |
| 162 | 132 | 338 | 0.494 | 1.265 |
| 163 | 105 | 443 | 0.393 | 1.657 |
| 164 | 161 | 604 | 0.602 | 2.260 |
| 165 | 215 | 819 | 0.804 | 3.064 |
| 166 | 498 | 1317 | 1.863 | 4.927 |
| 167 | 480 | 1797 | 1.796 | 6.723 |
| 168 | 602 | 2399 | 2.252 | 8.975 |
| 169 | 749 | 3148 | 2.802 | 11.777 |
| 170 | 1404 | 4552 | 5.253 | 17.030 |
| 171 | 1220 | 5772 | 4.564 | 21.595 |
| 172 | 1320 | 7092 | 4.938 | 26.533 |
| 173 | 1530 | 8622 | 5.724 | 32.257 |
| 174 | 2563 | 11185 | 9.589 | 41.846 |
| 175 | 1941 | 13126 | 7.262 | 49.108 |
| 176 | 1613 | 14739 | 6.035 | 55.142 |
| 177 | 1867 | 16606 | 6.985 | 62.127 |
| 178 | 2474 | 19080 | 9.256 | 71.383 |
| 179 | 1422 | 20502 | 5.320 | 76.703 |
| 180 | 1393 | 21895 | 5.212 | 81.915 |
| 181 | 1108 | 23003 | 4.145 | 86.060 |
| 182 | 1455 | 24458 | 5.444 | 91.504 |
| 183 | 737 | 25195 | 2.757 | 94.261 |
| 184 | 518 | 25713 | 1.938 | 96.199 |
| 185 | 407 | 26120 | 1.523 | 97.722 |
| 186 | 363 | 26483 | 1.358 | 99.080 |
| 187 | 136 | 26619 | 0.509 | 99.588 |
| 188 | 73 | 26692 | 0.273 | 99.862 |
| 189 | 33 | 26725 | 0.123 | 99.985 |
| 190 | 4 | 26729 | 0.015 | 100.000 |

Mean 175.57

Standard Deviation 5.25

TABLE 2

Cumulative Frequency Distribution for All PPST
First-time Mathematics Test Examinees
(February 1983-December 1984)

| Scaled Score | Frequency | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| 150-158 | 455 | 455 | 1.766 | 1.766 |
| 159 | 225 | 680 | 0.873 | 2.639 |
| 160 | 282 | 962 | 1.094 | 3.733 |
| 161 | 293 | 1255 | 1.137 | 4.871 |
| 162 | 388 | 1643 | 1.506 | 6.376 |
| 163 | 438 | 2081 | 1.700 | 8.076 |
| 164 | 436 | 2517 | 1.692 | 9.768 |
| 165 | 546 | 3063 | 2.119 | 11.887 |
| 166 | 614 | 3677 | 2.383 | 14.270 |
| 167 | 745 | 4422 | 2.891 | 17.161 |
| 168 | 773 | 5195 | 3.000 | 20.161 |
| 169 | 451 | 5646 | 1.750 | 21.912 |
| 170 | 789 | 6435 | 3.062 | 24.974 |
| 171 | 896 | 7331 | 3.477 | 28.451 |
| 172 | 969 | 8300 | 3.761 | 32.212 |
| 173 | 1050 | 9350 | 4.075 | 36.287 |
| 174 | 1086 | 10436 | 4.215 | 40.501 |
| 175 | 1138 | 11574 | 4.417 | 44.918 |
| 176 | 1132 | 12706 | 4.393 | 49.311 |
| 177 | 1204 | 13910 | 4.673 | 53.984 |
| 178 | 1199 | 15109 | 4.653 | 58.637 |
| 179 | 1281 | 16390 | 4.971 | 63.608 |
| 180 | 1230 | 17620 | 4.774 | 68.382 |
| 181 | 1192 | 18812 | 4.626 | 73.008 |
| 182 | 1201 | 20013 | 4.661 | 77.669 |
| 183 | 1116 | 21129 | 4.331 | 82.000 |
| 184 | 489 | 21618 | 1.898 | 83.898 |
| 185 | 847 | 22465 | 3.287 | 87.185 |
| 186 | 940 | 23405 | 3.648 | 90.833 |
| 187 | 803 | 24208 | 3.116 | 93.950 |
| 188 | 658 | 24866 | 2.554 | 96.503 |
| 189 | 554 | 25420 | 2.150 | 98.653 |
| 190 | 347 | 25767 | 1.347 | 100.000 |

Mean 175.90

Standard Deviation 7.98

TABLE 3

Cumulative Frequency Distribution for All PPST
First-time Writing Test Examinees
(February 1983-December 1984)

| Scaled Score | Frequency | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| 150-158 | 187 | 187 | 0.785 | 0.785 |
| 159 | 123 | 310 | 0.517 | 1.302 |
| 160 | 133 | 443 | 0.559 | 1.860 |
| 161 | 205 | 648 | 0.861 | 2.721 |
| 162 | 258 | 906 | 1.084 | 3.805 |
| 163 | 320 | 1226 | 1.344 | 5.149 |
| 164 | 499 | 1725 | 2.096 | 7.245 |
| 165 | 537 | 2262 | 2.255 | 9.500 |
| 166 | 531 | 2793 | 2.230 | 11.730 |
| 167 | 622 | 3415 | 2.612 | 14.342 |
| 168 | 676 | 4091 | 2.839 | 17.181 |
| 169 | 749 | 4840 | 3.146 | 20.327 |
| 170 | 874 | 5714 | 3.671 | 23.997 |
| 171 | 905 | 6619 | 3.801 | 27.798 |
| 172 | 922 | 7541 | 3.872 | 31.670 |
| 173 | 1037 | 8578 | 4.355 | 36.025 |
| 174 | 1116 | 9694 | 4.687 | 40.712 |
| 175 | 1142 | 10836 | 4.796 | 45.508 |
| 176 | 1381 | 12217 | 5.800 | 51.308 |
| 177 | 1764 | 13981 | 7.408 | 58.717 |
| 178 | 1151 | 15132 | 4.834 | 63.550 |
| 179 | 1174 | 16306 | 4.930 | 68.481 |
| 180 | 1117 | 17423 | 4.691 | 73.172 |
| 181 | 1143 | 18566 | 4.800 | 77.972 |
| 182 | 1041 | 19607 | 4.372 | 82.344 |
| 183 | 969 | 20576 | 4.070 | 86.414 |
| 184 | 889 | 21465 | 3.734 | 90.147 |
| 185 | 799 | 22264 | 3.356 | 93.503 |
| 186 | 632 | 22896 | 2.654 | 96.157 |
| 187 | 531 | 23427 | 2.230 | 98.387 |
| 188 | 262 | 23689 | 1.100 | 99.488 |
| 189 | 106 | 23795 | 0.445 | 99.933 |
| 190 | 16 | 23811 | 0.067 | 100.000 |

Mean 175.58

Standard Deviation 6.94

TABLE 4

Percent of First-time PPST Examinees Passing Illustrative Initial Certification and Program Entry Criteria in Reading
(February 1983 - December 1984)

| Examinee* Group | N | Mean Score | Score Range | (175) % Passing Init. Cert. | (172) % Passing Prog. Entry |
|---|---|---|---|---|---|
| Total Group | 23811 | 176 | 150-190 | 59 | 72 |
| Gender: | | | | | |
| Males | 4912 | 175 | 150-190 | 57 | 70 |
| Females | 18874 | 176 | 151-190 | 60 | 73 |
| Race/Ethnic: | | | | | |
| Black | 2602 | 169 | 151-189 | 20 | 34 |
| Mexican American | 1843 | 171 | 152-189 | 29 | 44 |
| Other Hispanic | 326 | 171 | 156-190 | 30 | 44 |
| White | 18241 | 177 | 150-190 | 69 | 82 |
| Undergraduate Major:** | | | | | |
| Humanities | 2337 | 178 | 153-190 | 75 | 85 |
| Natural Science | 2251 | 178 | 152-190 | 70 | 82 |
| Social Science | 1553 | 178 | 151-190 | 74 | 83 |
| Elementary Ed. | 8251 | 175 | 151-190 | 57 | 61 |
| Prac. Arts & Sc. | 826 | 174 | 159-188 | 52 | 66 |
| Business | 720 | 175 | 151-189 | 54 | 69 |
| Educ. General | 3781 | 174 | 150-190 | 51 | 66 |

*Data as shown only for groups with at least 300 examinees.

** See Appendix B for a description of the undergraduate categories.

TABLE 5

Percent of First-time PPST Examinees Passing Illustrative Initial Certification and Program Entry Criteria in Mathematics (February 1983 - December 1984)

| Examinee* Group | N | Mean Score | Score Range | (175) % Passing Init. Cert. | (171) % Passing Prog. Entry |
|---|---|---|---|---|---|
| Total Group | 25767 | 176 | 150-190 | 59 | 75 |
| Gender: | | | | | |
| Males | 5527 | 178 | 151-190 | 69 | 82 |
| Females | 20216 | 175 | 150-190 | 57 | 73 |
| Race/Ethnic: | | | | | |
| Black | 2641 | 168 | 151-190 | 21 | 35 |
| Mexican American | 1843 | 170 | 152-190 | 27 | 46 |
| Other Hispanic | 329 | 170 | 156-190 | 27 | 43 |
| White | 20101 | 178 | 150-190 | 69 | 84 |
| Undergraduate Major:** | | | | | |
| Humanities | 2607 | 178 | 152-190 | 70 | 83 |
| Natural Science | 2535 | 181 | 154-190 | 81 | 91 |
| Social Science | 1721 | 177 | 152-190 | 67 | 81 |
| Elementary Ed. | 8811 | 175 | 150-190 | 54 | 72 |
| Prac. Arts & Sc. | 922 | 176 | 153-190 | 61 | 77 |
| Business | 888 | 177 | 151-190 | 64 | 77 |
| Educ. General | 4094 | 175 | 153-190 | 54 | 71 |

*Data as shown only for groups with at least 300 examinees.

** See Appendix B for a description of the undergraduate categories.

TABLE 6

Percent of First-time PPST Examinees Passing Illustrative Initial Certification and Program Entry Criteria in Writing
(February 1983 - December 1984)

| Examinee* Group | N | Mean Score | Score Range | (172) % Passing Init. Cert. | (173) % Passing Prog. Entry |
|---|---|---|---|---|---|
| Total Group | 26729 | 176 | 152-190 | 78 | 73 |
| Gender: | | | | | |
| Males | 5897 | 174 | 155-190 | 69 | 64 |
| Females | 20806 | 176 | 152-190 | 81 | 76 |
| Race/Ethnic: | | | | | |
| Black | 2664 | 171 | 152-188 | 48 | 42 |
| Mexican American | 1835 | 173 | 153-188 | 57 | 49 |
| Other Hispanic | 330 | 172 | 154-188 | 52 | 46 |
| White | 20958 | 177 | 158-190 | 85 | 80 |
| Undergraduate Major:** | | | | | |
| Humanities | 2668 | 178 | 156-190 | 89 | 86 |
| Natural Science | 2643 | 176 | 159-189 | 83 | 79 |
| Social Science | 1788 | 177 | 157-189 | 85 | 81 |
| Elementary Ed. | 8924 | 175 | 153-189 | 80 | 75 |
| Prac. Arts & Sc. | 971 | 174 | 158-187 | 66 | 59 |
| Business | 1281 | 175 | 156-188 | 75 | 69 |
| Educ. General | 4159 | 174 | 156-189 | 61 | 64 |

*Data as shown only for groups with at least 300 examinees.

** See Appendix B for a description of the undergraduate categories.

TABLE 7

Frequency Distribution of Score Changes for PPST
Repeat Test-takers in Reading
(February 1983-December 1984)

| Scaled Score Gain | Frequency | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| -4 or more | 55 | 55 | 9.928 | 9.928 |
| -3 | 26 | 81 | 4.693 | 14.621 |
| -2 | 42 | 123 | 7.581 | 22.202 |
| -1 | 48 | 171 | 8.664 | 30.866 |
| 0 | 56 | 227 | 10.108 | 40.975 |
| 1 | 41 | 268 | 7.401 | 48.375 |
| 2 | 45 | 313 | 8.123 | 56.498 |
| 3 | 53 | 366 | 9.567 | 66.065 |
| 4 | 62 | 428 | 11.191 | 77.256 |
| 5 | 33 | 461 | 5.957 | 83.213 |
| 6 | 24 | 485 | 4.332 | 87.545 |
| 7 | 24 | 509 | 4.332 | 91.877 |
| 8 | 15 | 524 | 2.708 | 94.585 |
| 9 | 8 | 532 | 1.444 | 96.029 |
| +10 or more | 22 | 554 | 3.971 | 100.000 |



BEST COPY

TABLE 8

Frequency Distribution of Score Changes for PPST
Repeat Test-takers in Mathematics
(February 1983-December 1984)

| Scaled Score Gain | Frequency | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| -4 or more | 60 | 60 | 9.360 | 9.360 |
| -3 | 23 | 83 | 3.588 | 12.949 |
| -2 | 28 | 111 | 4.368 | 17.317 |
| -1 | 45 | 156 | 7.020 | 24.337 |
| 0 | 49 | 205 | 7.644 | 31.981 |
| 1 | 49 | 254 | 7.644 | 39.626 |
| 2 | 61 | 315 | 9.516 | 49.142 |
| 3 | 74 | 389 | 11.544 | 60.686 |
| 4 | 62 | 451 | 9.672 | 70.359 |
| 5 | 42 | 493 | 6.552 | 76.911 |
| 6 | 41 | 534 | 6.396 | 83.307 |
| 7 | 31 | 565 | 4.836 | 88.144 |
| 8 | 30 | 595 | 4.680 | 92.824 |
| 9 | 23 | 618 | 3.588 | 96.412 |
| +10 or more | 23 | 641 | 3.588 | 100.000 |



BEST COPY

TABLE 9

Frequency Distribution of Score Changes for PPST
Repeat Test-takers in Writing
(February 1983-December 1984)

| Scaled Score Gain | Frequency | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| -4 or more | 35 | 35 | 5.279 | 5.279 |
| -3 | 16 | 51 | 2.413 | 7.692 |
| -2 | 36 | 87 | 5.430 | 13.122 |
| -1 | 38 | 125 | 5.732 | 18.854 |
| 0 | 68 | 193 | 10.256 | 29.110 |
| 1 | 68 | 261 | 10.256 | 39.367 |
| 2 | 103 | 364 | 15.535 | 54.902 |
| 3 | 76 | 440 | 11.463 | 66.365 |
| 4 | 65 | 505 | 9.804 | 76.169 |
| 5 | 55 | 560 | 8.296 | 84.465 |
| 6 | 46 | 606 | 6.938 | 91.403 |
| 7 | 19 | 625 | 2.866 | 94.268 |
| 8 | 15 | 640 | 2.262 | 96.531 |
| 9 | 12 | 652 | 1.810 | 98.341 |
| +10 or more | 11 | 663 | 1.660 | 100.000 |

APPENDIX A

CURRENT PPST USERS
(includes users who will implement testing
no later than the Fall of 1985)

| State | Institutions within State | Statewide Adoption | Institutional Program |
|---|---|---|---|
| Delaware | Department of Public Instruction | C | |
| D.C. | Gallaudet | | E |
| Illinois | Elmhurst College | | E |
| | Illinois College | | E |
| | Northern Illinois University | | E |
| Indiana | St. Joseph's College | | E |
| Iowa | Iowa State | | E |
| | University of Northern Iowa | | E |
| Kansas | Kansas Board of Regents | E | |
| | Emporia State University | | E |
| | Fort Hays State University | | |
| | Kansas State University | | |
| | Pittsburg State University | | |
| | University of Kansas | | |
| | Wichita State University | | |
| | Washburn University | | E |
| Louisiana | Xavier | | E |
| Maryland | Mt. St. Mary's College | | E |
| | Western Maryland College | | E |
| Massachusetts | Elms College | | E |
| Mississippi | Mississippi College | | |
| Nebraska | University of Nebraska, Lincoln | | |
| | Wayne State College | | |
| | College of St. Mary | | E |
| Nevada | Department of Public Instruction | C | |
| | University of Nevada, Las Vegas | | E |
| | University of Nevada, Reno | | E |

Key: E = Program entry; guidance and counseling; exit criterion; program evaluation
C = Initial certification
S = Job selection

| State | Institutions within State | Statewide Adoption | Institutional Program |
|---|---|---|---|
| New Hampshire | Department of Public Instruction | C | |
| | Norte Dame College | | |
| New Mexico | New Mexico Highlands | | E |
| | University of New Mexico | | E |
| New York | St. John's University | | E |
| North Carolina | Bennett College | | E |
| Ohio | Ashland College | | E |
| | Baldwin-Wallace | | E |
| | Cincinnatti Public Schools | | S |
| | Council for Academic Excellence in Ohio Schools | | S |
| | Kent State | | E |
| | Ohio University | | E |
| | University of Cincinnati | | E |
| | University of of Dayton | | E |
| | University of Toledo | | E |
| | Wright State | | E |
| | Youngstown State | | E |
| Pennsylvania | Kutztown University | | E |
| | Temple University | | E |
| | University of Pittsburgh | | E |
| Rhode Island | Rhode Island College | | E |
| Tennessee | Department of Public Instruction | E | |
| Texas | Texas Education Agency (all institutions) | E | |
| West Virginia | Department of Public Instruction | C | |
| Virginia | Prince William County School Board | | S |
| | Virginia State University | | E |

Key: E = Program entry; guidance and counseling; exit criterion; program evaluation
C = Initial certification
S = Job selection

APPENDIX B

UNDERGRADUATE MAJOR FIELDS

HUMANITIES

Art History
Classics, Classicial Languages
Comparative Literature
Drama, Dramatic Arts
English Literature
Far Eastern Languages and Literature
Fine Arts, Art, Design
French
German
Italian
Linguistics
Modern Languages
Music
Near Eastern Languages and Literature
Other Foreign Languages
Other Humanities
Philosophy
Religion, Religious Studies
Russian
Spanish
Speech

NATURAL SCIENCES

Anatomy
Applied Mathematics
Archeology
Architecture
Astronomy
Audiology
Bacteriology
Biochemistry
Biology, Biological Sciences
Biophysics
Botany
Chemistry
Dentistry
Earth Science
Engineering
Entomology
Forestry
Genetics
Geology
Health Sciences
Life Sciences
Mathematics
Medicine

NATURAL SCIENCES (con't)

Metallurgy
Microbiology
Mining
Nursing
Nutrition
Occupational Therapy
Oceanography
Optometry
Osteopathy
Parasitology
Pathology
Pharmacology
Pharmacy
Physical Therapy
Physics
Physiology
Premedicine
Public Health
Speech Pathology
Statistics
Veterinary Medicine
Zoology

SOCIAL SCIENCES

Afro-American History
American Civilization, American Studies
American History
Anthropology
Communications
Economics
European History
Geography
Government
History
Industrial Relations and Personnel
International Relations
Latin American History
Law
Other Social Sciences
Political Science
Prelaw
Psychology
Public Administration
Slavic Studies
Social Psychology
Social Studies
Social Work
Sociology
Urban Development (Regional Planning)

UNDERGRADUATE MAJOR FIELDS
(continued)

ELEMENTARY EDUCATION
Early Childhood
Middle School
Nursery School
Primary School

PRACTICAL ARTS & SCIENCES
Agriculture
Child Care
Computer Science
Cooking
Distributive Education
Drafting
Electronics
Home Economics
Industrial Arts
Metal
Plastics
Printing
Sewing
Trade and Industrial Education
Wood

BUSINESS
Accounting
Administration
Bookkeeping
Data Processing
Distributive Education
Economics
Management
Shorthand
Typing

EDUCATION-GENERAL
Administration and Supervision
Educational Psychology
Guidance and Counseling
Media Specialist-Librarian
Physical Education
Reading Specialist
School Psychology
Special Education
Tests and Measurements

REFERENCES

Angoff, William H. Scales, Norms, and Equivalent Scores. Princeton, NJ: Educational Testing Service, 1984.

Dorans, Neal J. Technical Review of SAT Item Fairness Studies: 1975-1979. Unpublished Statistical Report: Princeton, NJ: Educational Testing Service, 1982.

Ebel, Robert L. Criterion-referenced measurements: limitation. School Review, 1971, 79, 282-288.

Glaser, Robert, & Nitko, Anthony J. Measurement in learning and instruction. In Robert L. Thorndike (Ed.), Educational Measurement, Washington, D.C.: American Council on Education, 1971. Pp. 625-670.

Popham, James W., & Husek, T. R. Implications of criterion-referenced measurement. Journal of Educational Measurement, 1969, 6, 1-9.



BEST COPY